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The Report and the Command: the Case for a Relational View in the Study of Communication

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ABSTRACT: The paper examines what it means to adopt a relational perspective in the study of animal and human communication. First it states that the informational view which dominates the study of animal communication leads to cut apart the biological, the cognitive and the social parts of social communication. When it comes to human nonverbal communication, it is difficult then to articulate its biological and the cultural dimensions. Following Ingold I argue that in order to go beyond the "natural pattern *vs* cultural rules or meaning" conception of human nonverbal communication, we need to rely on a relational view. But what is a relational view in the study of communication? In the final part of the paper, I suggest that social relationships are both subjective and objective entities and, drawing on an original paper by Kaufmann and Clément (2008, in press), I offer a hypothesis on how social communication could operate to objectively and subjectively organize the construction of social relationships.

Keywords: Nonverbal communication; relationship; biological/social cultural articulation

Résumé : Contenu et relation: pour une perspective relationnelle dans l'étude de la communication chez l'animal et l'homme. Cet article envisage les implications d'une perspective relationnelle dans l'étude de la communication animale et humaine. Il montre, dans sa première partie, qu'une conception purement informationnelle de la communication conduit à séparer la communication sociale en une partie biologique, une partie cognitive et une partie sociale. Une fois ceci effectué, la recombinaison ou l'articulation de ce qui est devenu « déterminants » du comportement devient problématique, et l'être humain se trouve séparé en trois « couches » : biologique, cognitive et culturelle. Suivant une suggestion d'Ingold, l'article cherche alors à montrer en quoi une perspective relationnelle de la communication évite ces difficultés. Dans sa dernière partie, il propose de considérer les relations sociales comme des entités à la fois subjectives et objectives et il s'inspire d'une suggestion originale de Kaufmann et Clément (2008, sous presse), pour proposer une hypothèse sur la manière dont la communication sociale organise la construction des relations.

Mots-clés : Communication non verbale ; relation ; articulation du biologique et du social

INTRODUCTION: BEYOND THE ANALOGIES

Biologists and cultural anthropologists have long been struck by the similarities between animal and human rituals and communicative behaviours. But the nature of the similarity itself proved difficult to precise. In a well known, and much attacked paper, Eibl-Eibesfeldt (1972) compares animal and human phallic displays. In a provocative eyample, he puts side by side an image of a "Papuan from Kogume on the Konca River", "Baboon sitting guard" and

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"genital display in a baby squirrel monkey." Part of the outrage experienced at the sight of the combination of these pictures stems from the difficulty in thinking about human/animal analogies[1]: what does it mean that a squirrel monkey and a man have apparently the same "display"? Is there more than a coincidence relation between those three displays? The answer is probably yes, because Eibl-Eibesfeldt goes on and offers examples of Phallic figurines that serve as guards and phallic displays that occur in very different cultures as aggressive displays, "Nor does it seem a mere coincidence that guards, scaredevils and gargoyles in very different cultures are shown in phallic display. We find such figures in Europe, Japan, Africa, New Guinea, Polynesia, Indonesia and ancient South America, to mention just a few examples". He concludes that "These similarities indicate that a *perceptual structure*, probably of subhuman primate origin, guides man (sic) when he (sic) produces such guards." (Eibl-Eibesfeldt, 1972, p. 307, emphasis added). But in the present state of our understanding of the biological intricacies of human social behaviour, the nature of such a "perceptual structure", as well as its mechanism, is difficult to imagine. Despite several interdisciplinary conferences where ethologists and anthropologists gathered together in the search for a common framework for the analysis of human and animal rituals (Huxley, 1971; Hinde, 1972; Thinès and De Heusch, 1995), cultural and biological theories of behaviour remained separated and it is still problematic today to find a way to sensibly articulate biological and social/cultural explanations in the study of human nonverbal communication (cf. Segerstråle and Molnár, 1997).

Because human communication systems are anchored in their evolutionary past and, at the same time, are shaped by the specific cultural environment in which the individuals develop, nonverbal communication has been labelled the "missing link" between culture and biology, the place where "nature meets culture" (Segerstråle and Molnár, 1997). I would not adhere to the "missing link" metaphor, because it suggests a kind of "chain" that would go uninterrupted from biology to anthropology, but the study of human nonverbal communication is actually confronted with the difficult task of linking up several completely different (and often contradictory) levels of explanation: the biological, the social and the cultural. For example, there is a sound biological foundation for the facial expressions of human beings. Evidence comes from the study of development (Eibl-Eibesfeldt, 1973; Ekman, 1973; Hinde, 1985; Schneider, 1997) the phylogeny of human facial expressions (Van Hoof, 1972, Preuschoft and Van Hooff, 1997), the similarity between human and primate facial expressions (Darwin, 1872; Van Hoof, 1972, Jolly, 1972), and from convincing psycho-physiological studies which show that upon seeing a happy or angry face, we are prepared to react (by smiling or frowning in return) even before the stimulus is consciously perceived (Öhman and Dimberg, 1978; Dimberg, 1997). Our perception system is prepared to react to specific facial expressions with specific responses and the same could be true of body pos-

[1] Another part might come from a reaction against something implicit in these pictures that is present, although unnoticed by the human ethologist, in many of their contemporary studies. It is the implicit assumption that native people can offer us versions of human behaviour that are more "natural" and thus not "subverted" by culture. It is naïve to believe that the "phallic" display of a papouan men is a not a cultural display. Such a belief explains that so many human ethologists travel to apparently remote areas of the world in (vain) search for "natural" human nonverbal communicative behaviours (cf. for a more recent example Schiefenhövel, 1997).

tures (Meeren et al, 2005). The clinical tradition (see Weitz, 1979 for a discussion) has taken these findings as evidences that facial expressions are universal expressions of emotions (Ekman, 1997) and much work has been devoted to the demonstration of the facial expressions' universal *meaning*. Contrary to this perspective, the structuralist approach (cf. Scheflen, 1965; Birdwhistell, 1970; Mac Dermott, 1980) has maintained that there is not one meaning for one gesture or facial expression: meaning differs according to the context of the signal. From this perspective, signals are considered more as organizing the interaction than as expressions of internal states (Kendon, 1976). Most authors, biologists as well as anthropologists, from the clinical as well as the structural tradition, recognize that biological and cultural explanations must be combined in one way or another. But hypothesis about the way the articulation works aren't very precise:

1. There are "innate" facial expressions on which culture imposes meaning. Indeed this is a way **not** to articulate biological and cultural explanations (cf. Birdwhistell, 1970; Eibl-Eibesfleldt, 1972);

2. There is an "innate basis" or innate patterns upon which "cultural rules" are applied (Ekman & Kelner 1997; Eibl-Eibesfeldt, 1972; Weitz, 1979). Culture is then seen as a "set of rules" or a "cultural filter" that prescribes how, for example, to use innate patterns.

Applied to the genital display example, it means that men would make the display "instinctively", without knowing what they are doing or why they are doing it, and then interpret it in cultural terms and apply cultural rules to its execution – as if "natural" behaviour would occurred and stood by itself and be only secondarily affected by learning and culture. It follows that the human is seen as a being composed of several "layers": a biological layer onto which is added a cultural "overlay" of meaning and display rules that are learned. As weird as this conception might appear it is, according to Ingold (Ingold, to appear), a very common way of "articulating" nature and culture in anthropological thought. Ingold has named it the "three in one" or complementary perspective – three because of the body-mind-culture set. He argues that such view is false for many reasons, in particular because cultural learning is not like filling a universal, genetically specified container with specific contents and because human beings are not made of several parts. Ingold suggests instead that a *relational* view would allow a more accurate articulation of biological and cultural factors in the explanation of human behaviour. In this view, the organism is not seen as an organism that acquires "cultural contents" through specific devices, but as a perceptual system that learns to perceive (or, in the terms of psychologist William James, to "be affected"[2]) through the "education of attention". Following his line, I'll show how the informational view that dominates the study of animal communication cuts apart the biological, the cognitive and the social parts of social communication. Once this is done, it is problematic to bring the parts together again. A purely informational view thus prevents the analysis of the "pattern which connect" human and animal communication systems as well as the understanding of human communication systems in a true evolutionary perspective. If it is true that in order to go beyond the "natural pattern *vs* cultural rules or meaning" conception of nonverbal communication we need to rely on a relational view, it

[2] (Cf. Latour, 2004)

is worth asking: What is a relational view in the study of communication? It should be more than just stating that communication is about social relations. In the final part of the paper, I suggest that social relationships are both subjective and objective entities and, drawing on an original paper by Kaufmann and Clément (to appear, 2008), I offer a hypothesis on how social communication could operate to organize the construction of social relationships.

THE STUDY OF ANIMAL COMMUNICATION

1. The early ethologists: signals as releasers for specific responses

In his controversial book on aggression, Lorenz explains the functions of the colours of coral fish: these express a readiness to fight and trigger an attack response on the part of the fish whose territory is being invaded (Lorenz, 1969). As soon as the signal disappears (i.e. when the fish is hidden from the view of its rival) the aggressive response fades. Such a mechanism is, according to Lorenz, an extremely simple way that nature has found to ensure that every individual will find a place to live and to mate. This example shows the main aspects of the first ethologists' perspective on communication. The conspecific is seen as displaying (permanently or not) or producing signals that act as "releasers" for an "innate release mechanisms" (IRM) in the receiver. When activated, the mechanism releases an innate response or a fixed action pattern, e.g. the attack response. This model even seemed sufficient to explain some behaviours of primates: the dark colour of young baboons, which is clearly visible, was thought to function as a releaser for caring responses that are incompatible with aggressive responses in older males and females, thus protecting the young against aggression.[3] The same is true, for example, in the case of aggression between two wolves: when one of the antagonists is about to loose the fight, clear submissive signals put an end to it. The submissive signals are doubly effective: they replace the signals that triggered the aggression and, because they are issued from infantile signals, they activate tendencies that reduce and curtail aggression. Some IRM have been hypothesized among humans too, in particular the babylike features (round face, large forehead, big eyes, big head, clumsy movements) that are known to elicit caring behaviour and which makes young mammals (and some young birds) so appealing to us. For the first ethologists, signals were designed by natural selection to alter the behaviour of conspecifics in a way that is beneficial to both sender and receiver with the whole of social life relying on effective communication. Signals are the means by which interaction with conspecifics (thus survival) is possible – a statement that Peter Marler summarized very aptly when he stated that the main function of animal communication is to regulate the distances between individuals (Marler, 1973).

If the early ethologists did not devise special methods or concepts for the study of communication[4], it was because they saw communicative behaviour as a subset of behaviour in general and emphasized the similarities between the ways that animals responded to the external world in general and the way they responded to that subset comprising other animals (Dawkins and Guilford, 1997, p. 58). Things were not openly discussed, but there was an implicit agreement on the fact that signals were "automatic" responses, instinctive,

[3] The understanding of the "agonistic buffering" is still incomplete. Cf. Whitten, 1987.

[4] with the exception of the ritualization

endowed with a "power" to elicit specific responses and that, with the exception of the ritualized signals, they were closely linked to the motivational system in which they appeared.

2. The informational view and the transmission model

Turning to the analysis of communication processes *per se* (Marler, 1961), students of animal behaviour have introduced into their field a model of communication as the *transmission of information* (i.e. Klopfer and Hatch, 1968, p. 33). This view was apparently challenged when Dawkins & Krebs (1978) argued that the "transfer of information" was the wrong way to interpret animal signals: on the contrary, animal communication should be seen as one animal attempting to manipulate the other. On pure theoretical and "logical" grounds, without any understanding of the necessary pathological consequences of a communication that would be deceptive *by nature* (designed to be deceptive, cf. Bateson, 1968) the new sociobiological view claimed that displays were designed to increase ambiguity by concealing the signaller's "true" motivations or intentions. Communication was then seen as a means to manipulate the conspecific in the sender's interest. Conversely, the receiver was supposed to develop counter-strategies to avoid being exploited. In what has been known as the "handicap theory" (Zahavi, 1991; Grafen, 1989), it was hypothesized that the receiver would favour costly signals because they are more likely to be honest. Therefore, the study of animal (and some human) communication took the form of another cost-benefit analysis, many studies being concerned with the evolution of signals.[5] This, however, did not put an end to the informational view, as it only slightly altered the definition of communication. Nearly all authors still agree that communication involves the transmission of information by a sender to a receiver and the subsequent use of that information by the receiver in "deciding" how to respond. "The sender produces a signal which conveys information. The signal is transmitted through the environment and is detected by the receiver. The receiver uses the information to help make a decision about how it should respond. The receiver's response affects the fitness of the sender as well as its own. In true communication, both sender and receiver benefit (on average) from the information exchange" (Bradbury and Vehrencamp, 1998).

The concept of communication as the transfer of information is however criticized in the field of animal communication studies. "Despite their ubiquitous contemporary use, terms like information, sender, receiver, message, meaning, and deception have their origin and their intuitive base in discussions of human communication. To call "information transfer" what animals, organs, or even cells do when they interact is implicitly to use human communication as a model for all forms of interaction among organismic entities" (Owing and Morton, 1997, p. 362). And the authors warn that the concept of information "seriously misleads us". Actually, as some scholars have repeatedly stated, even human communication is not firstly about the transmission of information

[5] In the current adaptationnist paradigm, it is hypothesized that facial expressions have increased the inclusive fitness of our ancestors and have consequently been selected by evolution. But interestingly, the adaptationnist paradigm does not easily apply to primate facial expressions because they are not costly signals. If they want to hold onto the paradigm, researchers need to postulate very complicated *ad hoc* explanations (cf. Schmidt and Cohn, 2001). In the restricted adaptationnist paradigm of costly signals, the evolutionary explanation of facial expressions is very fragmentary.

(cf. Quéré, 2000). The assumption that communication is about the passage of new information from one person to another "cannot be assumed to be descriptively correct, simply because it is popular" (Birdwhistell, 1970, p. 88).

3. The report *and* the command

According to Horn (1997), the model of communication as transmission of information has led ethologists astray into pointless debates. "The study of animal communication uses concepts that at first sight appear familiar and straightforward, but on reflection become academic and obtuse. Concepts like meaning, reference, manipulation, honesty, and costs have spawned complex debates even though they are not particularly technical terms. Part of this unexpected subtlety is the nature of the beast; communication involves two coevolving parties whose interest may or may not coincide. Most of the complexity, however, comes from our preconceptions about how communication works" (Horn, 1997, p. 347). Horn states that animal communication is not, in the main, about transmission of information or statement of facts, but first about *acts and relationships* and that it would be better accounted for by "speech acts" theory (cf. Austin, 1962). That is to say: animal communication is better understood as action than as statements of facts.

Empirical confirmation of this can be found in a dispute that opposed the ethologist Robert Hinde (1981) against the sociobiologists Caryl (1979; 1982) and Dawkins and Krebs (1978). The question under discussion was the real predictability of threat displays in birds: do they really announce what the animal is about to do, i.e. are they honest, or are they deceptive as Krebs and Dawkins (Dawkins and Krebs, 1978; Krebs and Dawkins, 1984) had claimed? Caryl (1979) measured the correlations between the threat displays and actual attack and he found very poor correlations. This was interpreted as evidence that displays were not informative about what the animal was "really" about to do, but on the contrary misleading. In his discussion, Hinde implicitly admitted that the informational perspective wasn't appropriate for the study of animal communication when he wrote : "Both Caryl and Krebs and Dawkins misinterpret the ethological evidence as indicating that displays have been selected to convey accurate information about what the actor will do next. In fact, the very processes of ritualization leading to "typical intensity" and "emancipation" are such as to dilute the relations between the underlying motivational state and the display movement". (Hinde, 1981, p. 538) He suggests that the "message" of the displays can be translated as follow "I will attack or stay, but am unlikely to flee" or "I will flee or stay, but am unlikely to attack" (*id*.) Hinde wants to demonstrate that when it is put in a probabilistic frame, the display is much more predictive, i.e. much more honest. Displays are thus reinterpreted to "mean": "I want to stay but if you do X I am more likely to escape than to attack you" or "I want to stay but if you do X I am more likely to attack than to escape" (*ibid.*, 539). What the actor actually does depends, in part, on the further behaviour of the other bird. The extent to which attack or escape are predicted by the displays may be due to the behaviour of the reactor. J.S. Smith (1991, 1997) comes to the same conclusion when he writes that most displays in birds are not used just before the signaller's attack but rather while it remains in an encounter and continues to exchange signals with its opponents. The signaller acts more like a negotiator than a berserker. We can go a step further and consider with Horn that a bird defending a territory with song must not only be heard, but must also regulate its song rate and the types of songs it sings in complex ways that in effect *negotiate* its territory boundary

with neighbours. "We may try to translate even these detailed acts by using external comparisons, and so may say that a bird is singing in a particular way is advertising its readiness to interact aggressively or its indecisiveness, for example. The bird is interacting, however; the song it sings replaces physical interaction" (Horn, 1997, p. 355).

From this it must be concluded that the informational content of animal signals is not as clear-cut as ethologists might have thought. Moreover, more and more ethologists recognize what Smith has said since *The behavior of communicating* (1977) – much information in animal communication is contextual. If each signal has more than one behavioural selection message, providing only probabilities for each, the "meaning" of a given display depends both on the situation and on the context of the other displays in which it is given (Hinde, 1981, p. 539).[6] In our view, the discussion shows that the display looks more like a means to establish relationships than a signal that states facts. Since Bateson (1963) we know that all signals, all messages, are two-sided entities: they are at the same time signals of state *and* commands or stimulus for a reaction. "The wag of the dog's tail which for individual psychology signifies an inner state of the dog becomes something more than this when we ask about the functions of this signal in the relationship between the dog and his master. […] It becomes an affirmation or a proposal about what shall be the contingencies in that relationship". (Bateson, 1963, 230) This is the core of the mechanism of communication: it is because specific acts of A trigger some reaction in B that the communication process can lead to interactions and social relationships. As the first ethologists implicitly recognized, messages are at the same time the "expression" of an internal state *and* the stimulus that trigger social interaction. Communication is inextricably linked to social interaction. By focusing only on the informational side, the transmission model of communication precluded overtures towards the relational dimensions of communication – and a relational point of view. Indeed in the sociobiological paradigm, the communicative process is entirely defined outside any reference to social life and social interaction. In a purely individualistic approach, signals are a means of exploiting the congener (sender) or selecting the "good" behaviour (receiver). They are a means for individual survival. J.S. Smith (1977, 1991, 1997) has promoted an interactional view and criticized the sociobiological conception of communication on this ground: "Focusing on the individual ignored the means by which contributions of participants are integrated into coherent social events. Communication's role in interactions cannot be predicted from an understanding just of the internal and evolutionary causes of an individual's behaviour. Social interactions, and the social relationships, bonds, and group structures that arise from them, are the arena for communication." (Smith, 1997, p. 10)

In conclusion, if the introduction of the informational view proved to be productive in some areas of animal communication study, it also brought into the field the inconsistencies associated with a purely individualistic and infor-

[6] There is a nice anecdote here. The ethologist Colin Beer devised a clever playback experiment in order to test young seagulls for their ability to recognize alarm calls. He captured some youngsters and carefully recorded the calls in the colony. When he played the alarm calls back to the chicks they failed to react. But they did when Beer, short of ideas, played the original recording. For the young seagulls an alarm call is meaningless if it is not given by several individuals one after the other (Beer, 1979).

mational conception of communication. We will now proceed to clarify some of these inconsistencies.

4. Communication as a window to cognition.

The cries of anguish from a wounded animal presumably do not result from any conscious attempt to communicate and ethologists have tended to consider that all animal communication fell into what Griffin (1985, p. 620) has ironically called the "groans of pain" or GOP category. But this view of signals as direct results of internal physiological conditions has been challenged by findings that opened the way to the study of communication as a window to animal cognition (Griffin, 1991).

a. Researches on the "audience effect" have demonstrated that domestic cocks and other animals are able to "retain" a call according to the presence or absence of an appropriate receiver (Marler et al, 1991, p. 187);

b. Studies of the deceptive use (or withholding) of alarm calls by birds (Munn, 1986a and b) and of alarm, food, inter-group encounter and other signals by primates (Whiten and Byrne, 1988)[7] have opened the question of the intention to deceive;

c. Studies of referential signalling (Seyfarth et al, 1980; Hauser, 1996; Marler and Evans, 1997) have suggested that signals are partly symbolic.

Together, these studies have asserted the idea that communication is not strictly bounded to physiological condition. But if animal signals are not just groans of pain, what else are they?

According to Griffin (1991, p. 14), the effect of an audience is a significant criterion for distinguishing between involuntary GOP communication and intentional communication. If the signals are emitted regardless of the presence or absence of potential recipients, intentional communication seems unlikely. However, if the emission of the signal is affected by the presence or absence of certain categories of social partners, then it might be supposed that the animal has some kind of control over the production of a signal. Marler and collaborators (Marler et al, 1986a, 1986b; Marler et al, 1991) have indeed demonstrated that the presence or absence of appropriate signal receivers might influence "the decision to withhold a signal" (Marler et al, 1991, p.187) in the domestic cock. They presented cocks with food under four social conditions in an adjacent cage: familiar female, strange female, empty cage, and adult male. In natural conditions, when they find food, males emit a specific call (a food call) that attracts females. In the experiments, male's food called on almost every trial when a female, familiar or strange, was present in the adjacent cage. In contrast, males almost never called when another male was present. What makes the absence of calling in the presence of males interesting is the fact that during trials with no audience, males frequently called during food presentation. Thus, although food presentation commonly elicits calling, males appear to suppress their vocal behaviour in the presence of same-sex competitors.

In the same species, an audience effect has also been demonstrated for the alarm calls but the call is differently affected, suggesting a different mechanism. Alarm calls are given by cocks in the presence of conspecifics, either

[7] For example, a subadult male chacma baboon could, upon being chased by a coalition of opponents, stand on hindlegs and stare into the distance across the valley. His opponents then would stop, look in this direction and not attack him (Whiten and Byrne, 1988:237).

male or female, but not when they are alone. Experiments also show dissociation between the vocal and the non vocal components of the response: the alarm calls are affected by the social context but it is not the case for the non vocal behaviours such as crouching down, sleeking the feathers and fixating on the stimulus (Evans, 1997). It means that audience effect is not simply a manifestation of social facilitation, as this would be expected to affect both call production and other predator linked behaviours (Evans, 1997, p. 116). Experimenters tried to identify the perceptual features that are used by males "to assess whether or not an alarm call should be produced" (Hauser, 1996, p. 578). They found that males alarm call more in the presence of chicks of their own species than when alone or in the presence of females of other species, thus excluding size as the only criterion.

In the words of Marler and Evans, these results show that "some animal signals are not inextricably bound to a suite of emotional responses. In certain situations, animals have the ability *to control the production of a signal*, such as a vocalization, independently of other concomitant responses to the referent. […] Signal production is determined not only by stimulus characteristics, but also by the social circumstances of the signaller. Certain signals are produced when communication is socially appropriate, and withheld when it is not. Both kinds of evidence argue against a comprehensive application of an emotional interpretation of animal signalling" (Marler and Evans, 1997, p. 152-153).

I have quoted the authors at some length because the words used to describe or interpret the results are important: animals "*assess whether or not an alarm call should be produced*" (Hauser, 1996, p. 578) and "*control the production of a signal*" (Marler and Evans, 1997, 152). They take "*the decision to withhold* a signal" (Marler et al, 1991, p. 187) and that is influenced by the presence or absence of appropriate signal receivers, i.e. the "social circumstances" of the signaller. The communication process is seen as the "decision" of a brain to send or retain a signal, according to the rational assessment of the social situation. The whole process is reputed to be "cognitively", not to say consciously based (as opposed to emotionally motivated), as if it rested on "pure" information analysis. But beyond this quasi intentional vocabulary, the results are still difficult to interpret. After a review of the work on audience effect Hauser, for example, concludes that "Results from the domestic chicken indicate that the particular properties of an audience *are relevant* to the production of food and alarm calls" (Hauser, 1996, p 579, emphasis added). But what is exactly that relevance? What are the "particular properties of an audience" for a cock? Are they just a matter of stimulus and information transfer? What kind of a mechanism might account for these competences?

The case of the food calls of the rhesus macaques tells a little more. Rhesus monkeys on the island of Cayo Santiago in Puerto Rico often call when they find food.[8] They have different calls for high-quality and rare foods like coconut and lower-quality foods such as the provisioned monkey chow. When they discover food, individuals call on some occasions but remain silent on others. This observation led Hauser to raise several questions. For example, are silent discoverers intentionally suppressing the information, aware that if others do not hear or see them then they won't know what has happened? To attempt to answer these questions he ran a series of experiments. When discoverers see

[8] The summary presented here is from Hauser, 2000, 148-150

the food, their first response was to look around in all directions, presumably searching for both potential enemies and allies. Half of the subjects tested then called, whereas the others remained silent. Because Cayo Santiago was densely populated, other rhesus monkeys soon noticed them. Some discoverers were severely attacked, whereas others were either displaced or allowed to feed in peace. First Hauser thought that low-ranking individuals would be more often attacked than high-ranking individuals but dominant discoverers were as likely to be attacked as subordinates. Silent discoverers were, however, attacked more than vocal discoverers and obtained less food as well. Why, then, did not they call? They would, after all, get the benefits of a few pieces of food and eliminate the cost of attack. May be, suggests Hauser, they are following a rule like this: "Call if you detect more dominant individuals, but keep quiet if you do not". Then he offers this interpretation: "If this rule is correct and sufficient to explain the rhesus monkey's behaviour, it suggests a kind of deception that is more like that of the mantis shrimp and the chicken. Specifically, the decision to call or remain silent is simply *a matter of cost-benefit analysis*. There is no additional complexity in the behaviour that justifies an explanation based on the discoverer's mental states, his capacity to assess his own beliefs as well as the beliefs of others nearby. *The economics of the situation* accounts for the patterns observed." (Hauser, 2000, p. 149, italics are mine) Depending upon the results of their scanning, individuals either call or remain silent.

A second experiment with rhesus monkeys complicates Hauser's interpretation and pleads for a relational point of view. He ran the same kind of experiment with peripheral males, individuals that have yet to join a social group and are in "limbo". In contrast with members of a social group the peripherals males never called when they found food, and were never attacked when caught. They were either allowed to feed in peace or were supplanted without being chased or physically attacked. Their behaviour cannot be explained by the earlier rule and another decision rule accounts for the general pattern: "If you are a member of a social group, call if you detect more dominant individuals, otherwise remain silent. If you are a peripheral male, remain silent." Hauser concludes: "The rhesus monkey's behaviour has all the signs of mental complexity, including strategic manoeuvring, voluntary control over calling, and attribution of knowledge to others who can or cannot see and hear what is going on. We might even be tempted to say that when information is suppressed, discoverers are breaking a social convention and, when conventions are broken, punishment is the only recourse. As our discussion of simpleminded rules suggests, however, there are alternative explanations, ones that do not require individuals to infer what others believe, desire, or intend" (Hauser, 2000, p. 150).

THE CONSEQUENCES OF THE INFORMATIONAL VIEW

These remarkable experiments on audience effect and their interpretation deserve four comments.

1. It has been stated above that, just as light has two states (corpuscle and wave) messages are two-sided entities. Communication creates interactions and social relationships thanks to its command aspect. For example, it is the "command" aspect of the baby like features of a kitten that "tells" someone "take it in your arms". In the same time, the person is turned in an emotional and relational disposition towards the animal. When a purely informational model of communication is used, we tend to believe that the whole communi-

cative process lies in the exchange of information. The command aspect of communication, the "decision" or the "choice" is thus situated *in the animals themselves* (monkey or domestic cock), in their brain, although it is a property of the communication process and its relational side. It follows that animals become rational beings. They are experts in analysing information, assessing the situation, reasoning in a "if…then" model without being conscious of it, and take decisions. The animal's portrayal is very strange indeed.

2. Social relationships themselves are mechanized. Results from the domestic chicken experiments have indicated that the particular properties of an audience are relevant to the production of food and alarm calls. As noted above, the vocabulary used to describe the animal's engagement in a particular social relationship (for example, towards a chick, towards a potential mate, towards a rival) is a purely analytical vocabulary: animals "*assess whether or not an alarm call should be produced*" and "*control the production of a signal*". The "social circumstances" of the signaller are described as "information assessment". In a communication model where animals exchange signals and take "decisions" about the "right" behaviour, social relationships are supposed to be the result of the analysis of the informational content of a message. But social relationships are, first of all, qualitative emotional relations in which the animals are "taken" and engaged.

Maybe because of the anthropomorphism taboo (cf. Renck and Servais, 2002; Servais, 2004), neither the monkeys nor the cocks are seen as experiencing feelings or emotions. Ethologists apparently prefer to see them as reasoning machines, as if this were less anthropomorphic. Of course the reverse is true. It is more anthropomorphic to suppose that a monkey is reasoning on a "if…then" basis than to suppose that it has emotions and is engaged in meaningful relationships (Caporael, 1986). In the case of the domestic cock, the audience effect is limited to the communicative components of the response, suggesting that communication and social interaction are part of the same behavioural unit. The example of the peripheral males makes strikingly clear that the main determinant of the calling behaviour is the kind of relationship in which the animal is engaged. Furthermore, it is only when that fact is taken into account that we can understand the behaviour of the monkeys who discover the discoverer: they do not attack if he is a stranger but commonly attack if they are related to him. I suggest that the nature of the social relationship makes them "see" or perceive the situation in a very different way. There is no need to suppose "revenge" or "punishment" on their part: it is enough to suppose that being in a social relationship or not creates different expectations… and frustrations. We also need to suppose that animals may distinguish between qualitatively different relationships: a chick, a potential mate, a rival. It seems that they do, since they behave differently. If we make the assumption that the animals are engaged in meaningful relationships that "tune" their disposition to communicate, there is no need to suppose that they "withhold", "control" the emission of a signal or "assess whether or not an alarm call should be produced". Instead they behave according to the social relationships in which they are engaged. Making way for to the relational side of communication avoids the "over-cognitization" of the animal that results from a purely informational view.

3. Two additional factors contribute to reinforce the over-cognitization of the animals: the "intellectual bias" and a translation bias. The "intellectual

bias" is commonly recognized in ethnographic work (Bourdieu and Wacquant, 1992, p. 34) but it often goes unnoticed among ethologists. It is the tendency to mix up the position of the detached scientist who observes and analyses social relationships with the position of the actor who is "taken" in it. A monkey engaged in social grooming cannot have the same perception of its social relationships as the primatologist describing it. The scientist should be wary not to confuse his/her intellectual and analytical understanding with the animal's "reasons" or understanding.[9] The translation bias arises when one tries to describe animal communication in the language of facts. Relational messages then take the appearance of intentional thinking. For example, Gouzoules et al. (1984) have shown that the recruitment calls of juvenile rhesus macaques convey information about the social status of the antagonist as well as the degree of arousal of the caller. Commenting on these findings, Griffin noted that "This does not, of course, prove rigorously (though it does suggest) that the monkeys are really thinking about such things as "that guy is a relative" or "his mother is a dominant" but it does require that our concepts of the internal state leading to the communicative signals must include such information in addition to levels of anger, fear, or general arousal." (1991, p. 14-15). The translation bias also exists in human communication systems, where translating kinesics or paralinguistic messages into words is likely to introduce gross falsification "due to the fact that all such translation must give the more or less unconscious and involuntary iconic message the appearance of conscious intent" (Bateson, 1968, p. 615). This is why, according to Horn, translating animal signals should consist of clarifying the rules that govern the use of those signals, rather than figuring out what facts they might stand for. Horn goes on to say that the most referential of signals, that seem to be black-and-white statements of fact, like food calls and predator alarm calls are probably impossible to translate without spelling out the social context in which they are given as well as the future behaviours that they commit the animal to (Horn, 1997, p. 353). In other words, the animals are related to the world around them and their messages are parts of their responses to this world.

Together with the informational view, the translation and the intellectual bias go toward giving an appearance of intentionality and rationality to communication processes that actually come under relations, emotions and feelings. Commenting on Whithen and Byrne's 1988 paper on deception the primatologist Frans De Waal insists on the necessity of basing the study of deception on a clear understanding of the normal emotional life of animals. De Waal does not specifically advocate a relational point of view, but he regrets the lack of references to feelings in most of the literature on cognition. He notes that the mind is usually compared with a computer, that is, to a machine "without fears, hopes, and changing adrenaline levels. In reality, emotions colour perception at every level, and it is impossible to draw a line between the rational and the emotional components of decision making" (De Waal, 1988, p. 254).[10]

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[9] Cheney and Seyfarth (1990) have asked whether the vervet monkeys see their social relationships in the same way as the primatologists see them. Of course the comparison is heuristic, but it easily leads to the confusion between *les choses de la logique et la logique des choses* as would say Bourdieu.

[10] It isn't the place to go into a thorough examination of the literature on deception but it should be noted that Evans (1997), Smith (1997) and Byrne (1989) agree that too often a signal is interpreted, even named, e.g., as a "food call", on the basis of limited knowledge of its use, and then subsequent

4. Finally, the purely informational view leads to difficulties in the interpretation of social cognition. In the field of human communication theory, anthropologist R. Birdwhistell warned us long ago that if we see communication as the mere transfer of information between two separated individuals instead of "the dynamic structure which sustains order and creativity in social interaction" (Birdwhistell, 1970, p. 230), we downgrade methodologically and we find ourselves with cheaters and liars (McDermott, 1980)[11]. "When we talk about communication we are not talking about a situation in which John acts and Mary reacts to John's action and in turn John reacts to Mary's action in some simple, ongoing, one-after-another sequence. Essentially, we discuss communication as a complex and sustaining system through which various members of the society interrelate with more or less efficiency and facility. […] Mary and John engage in communication." (Birdwhistell, 1970, p. 12)

It follows that once we are talking about animals that "assess" the situation and send signals, we cannot avoid raising the question about the "intention" to deceive. Is the animal who fails to signal intentionally suppressing information? The question is of course an impossible one, but cognitive ethologists suggest a provisional solution: they distinguish the withholding of information "in a functional perspective" from an "intentional sense" (cf. Hauser, 1996, p. 591). In one case we have an animal's behaviour caused by some evolved mechanism, in the other an animal behaving intentionally. The interpretation oscillates between these two extreme: the "functional" and the "intentional", the "evolved" and the "conscious" – suggesting that we should choose one of them. The problem has been identified by the primatologist Menzel in his comment of Whiten and Byrne's 1988 paper: "Whiten & Byrne offer us a choice between "animals as mindless" or "animals as psychologists", but in so doing they obscure a third alternative, which still sounds fine to me. It is, of course, animals as animals – using Darwin's rather than Descartes' understanding of the terms "animal", "human", "mechanical" and "mental" (Menzel, 1988, p. 259). Menzel does not further precise what he means by "animal as animal", but it probably has something to do with the animal related to its world, an animal already "taken" and engaged in a nexus of relationships. Between socio-ecology and cognitive psychology, the work of Clark (1997) on the notion of the "interactive mind" could provide an adequate theoretical frame to understand the 'animal as animal'.

In conclusion, the purely informational model of communication which is used in some areas of ethological research leads to serious inconsistencies. It is responsible for an overcognitization ot the animal, for a mechanical view of social interactions and it makes the understanding of social competences more difficult. When the "command" side of communication is neglected, the tight link between communication and social interaction is broken. Social communication is cut up into a biological part (the evolution of signals), a cognitive part (the "assessment" mechanisms) and a social part (the social structure). The animals themselves are reduced to cognitive and/or evolved minds "emitting signals" and reacting to them.

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cases of wider use are assumed to show deception. They insist that the distinction between "honest" and "deceptive" signals should be based upon the animal's categorization scheme rather than those that human observers bring to the problem, but most often it isn't the case (cf. Evans, 1997, p. 129).

[11] Reprinted in Winkin, 1981, p. 298

HOW TO DESCRIBE RELATIONSHIPS?

In the view of Smith (1977, 1997), communication is the way by which some regularity is brought into social life – with a degree of indeterminacy – more than the way by which an individual intentionally "expresses" ideas or feelings to others. Smith (1977, 1997) stressed that much of the information provided by animal signalling is only broadly predictive. In animal communication there is not a "one signal-one meaning" equation (Smith 1977). Still, such broadly predictive messages suffice for the animals to carry on with their social interactions and the most surprising is probably that such an imprecise communication does "contribute to the management of interactions and the orderliness of relationships among individuals". (Smith, 1997, p. 45) In this view it is because of the context, i.e. the unique situation in which the animal finds itself, that a signal can elicit different responses in different situations.

The relational view advocated here meets the phenomenological perspective initiated by the biologist Jacob von Uexküll (1934-1965) and later advocated by Buytendijk (1952; 1965). Buytendijk asserted that each phenomenon that we try to isolate from its relational context "never ceases to reaffirm its affiliation to the whole to which it has been detached" (« Chaque phénomène qu'on tente d'isoler en l'arrachant à son contexte, pour l'examiner plus attentivement lui-même, ne cesse de réaffirmer son appartenance corrélative à l'ensemble dont on l'a détaché ») (1952, p.2). I believe that the unavoidable inconsistencies that accompany the informational point of view are indeed the marks of the "rebellion" of the facts against the inappropriate separation of a part from its whole. Both Buytenkijk and von Uexküll insisted that animals are subjects that live in a significant world to which they relate through behaviour. Today, the phenomenological perspective is getting growing experimental evidence in animal behaviour research. Scientists from the "school of Toulouse" (Gallo, 1988; Gervet, 1996; Lenoble and Carlier, 1996; Dubois, 2004; Renoue and Carlier, 2006) have repeatedly demonstrated that the significance of a neutral object or event is not inherent to the object itself but is defined according to the action which gives a meaning to the situation in which the object appears. For example, Dubois et al (2000) have shown that objects "elicit" different behaviours in capuchin monkeys according to where and when they are encountered. In another experiment, monkeys proved to be less efficient using tools in order to get food in a "grooming place" than in an area previously devoted to manipulation (Dubois et al, 2001). Monkeys treat the objects according to the patterns which connect them to their surroundings and they "stick" to a reality that is specified through behaviour. Furthermore, the results illustrate the inseparability of the cognitive and the affective aspects of cognition (Dubois and Carlier, 2005).

The experiments of Carlier, Dubois, Gallo and their co-authors are about objects, not social relations, but the results of the audience effects experiments and the indeterminacy of animal signals suggest that in the domain of social communication as well animals behave according to the significance of the relationships rather than to some objective properties of the signal or the partner. More precisely, it can be said that animals behave according to the nature of the social relations that they are specifying through their communicative actions. Social cognition isn't about control, deception or assessment of objective qualities of the partner. It is a knowledge closely linked to the social situation in which the individual is engaged.

Applied to social cognition, the conclusions of the Toulouse school would say that a relationship or an interaction, like an object, does not have a unique reality which can be objectively described. But then, what are social relationships, and how to describe them? R. Hinde (Hinde, 1976 a and b; Hinde, 1983) tried to objectively describe interactions and relationships and defined a relationship as the sum of the interactions of which it is made. His work has, however, proved to be limited in its applications. Mainly because, I believe, it did not take into account the subjective part of a relationship – and thus did not allow the researcher to clearly *qualify* or distinguish types of relationships. It is obvious that not every interaction or behaviour has the same weight in a relationship. Some are ignored or redundant, others "requalify" a relation. The relationship has been defined (Bateson, 1980) as the product of two subjective visions. Bateson's definition is interesting because it establishes that there is not a unique objective description of a relationship. Moreover, an objective description of a relationship does not describe anything that exists. But neither are relationships indefinite, "purely subjective" realities. Not all aspects of the other's behaviour are taken into account. Some selective mechanism must operate. If animals have only a limited set of signals to regulate the great diversity of their interactions, there must be some constraint on the system – or social interaction could not be organized. If animals could "construct" their own and unique vision of a relationship, without any constraint, social interaction would be totally disorganized. It is not the case. Thus there must be biologically significant categories or *types* of social relationships that are "recognized" by the animals as they react to the non-verbal signals of others. Like an object, a relationship must have an objective *and* a subjective aspect. Albeit from a somewhat different line of reasoning, this is exactly what Kaufmann and Clément, put forward (Kaufmann and Clément, in press). Anthropologists of communication have long ago suggested that social communication works through the perception of gestalten or patterns (Birdwhistell, 1979; Bateson, 1971) but the identification of the perceived patterns proved to be undermined by serious methodological difficulties : usually, the more the patterns are meaningful, the least they are objective (Watzlawick, 1981, p. 96). Kaufmann and Clément go beyond these methodological difficulties and argue that social relations meet most of the gestaltist criteria of the "affordances" as Gibson (1986) has defined them:

1- the identification of an affordance allows for action in an appropriate manner;

2- the gestalt result from the coupling between the objective properties of the relational structure of social phenomenon (for example, hierarchy and exchange) and cognitive factors (selective attention to the facial expressions, sounds, postures) depends on the affective/cognitive orientation of the animal. They suggest that the social forms are objective clues allowing to place conspecifics in a net of social relations and to make their behaviour predictable. When they call differently according to their opponent's category, monkeys would, according to Kaufmann and Clément hypothesis, recognize the standard forms of social interaction that a behaviour actualises (for example, alliance and kin). They further hypothesize that there could be specific (evolved) devices devoted to this task of spotting the elementary social forms. The evolved devices could organize what G. Bateson has called the deutero-learning (Bateson, 1968b) which is precisely the learning of interactional contexts or patterns of relationships. Biological signals such as

facial expressions, because they activate emotional responses or the preparation for emotional responses in the observer, are the hard wiring or the solid core on which social relationships and learning are constructed.

The hypothesis of Kaufmann & Clément fits with the data on audience effect and referential signalling that have been presented above. Animals behave according to the identification of a specific social form (group member/not member; potential mate/rival/chick) that organize their expectations. The hypothesis of social forms (patterns) recognition tightens the links between social interaction and communication. Thus the evolution of facial expressions can be examined concomitantly with the evolution of forms of social relations. For example, Preuschoft and Van Hooff (1997) suggested some specific links between facial expressions and patterns of social leadership for the phylogeny of laughter and smiling in several primate species. They hypothesize that the friendly signal "broad smile" that exists only in some species of primates is to be correlated with a "democratic" style of dominance. With a relational frame such as the one advanced here it should be possible to further specify how over evolutionary history the intricacies of social interactions, relationships and groups have both shaped and been shaped by the animals' capacities for communication over time. Parallel with the phylogeny of facial expressions, a phylogeny of social forms thus becomes conceivable.

Coming back to the analogy of the penis display, we are now in a position to replace Eibl-Eibesfeldt's "perceptual structure" with the "social forms" of Kaufmann and Clément. To our view they could be affordances that guide the organism in its learning of the classification of social relationships. The difficulty is that they have both an objective and a subjective dimension. When a smile perceived prepares a smile in return and tunes the emotional tonality of the organism to confident and friendly dispositions, it restricts the number of possible subjective construction of a relationship. The relational framework that is needed for in the study of social communication has only been sketched here. But it is already clear that it solves many of the difficulties that are brought in the communication research by the purely informational point of view – first of all, it does not separate social communication and organism in biological, social and cognitive parts.

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